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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to an antimicrobial agent suitable for drugs, quasi drugs, cosmetics, toiletries products, etc.

[0002]

[Description of the Prior Art]The antimicrobial agent is used in many fields, such as decomposition prevention, such as skin disease, a disease of oral cavity, and cosmetics, sterilization disinfection of fingers, etc. which are caused by the microorganism.

[0003]Synthetic compounds are most and the antimicrobial agent used conventionally does not have many which reveal side effects, such as there being a stimulus to the skin, membrane, etc. and causing an obstacle etc. Thus, since there is a problem in safety, the amount used and the dosage forms which can be blended are restricted and the actual condition is that an effect cannot fully demonstrate. What an ingredient with a weak operation has faults, such as instability, and can satisfy a natural antimicrobial agent is not obtained.

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[0004]Therefore, an object of this invention is not to have a stimulus and other side effects and to provide natural antimicrobial agents with enough effect as an antimicrobial agent and stability.

[0005]

[The means for solving a technical problem and an embodiment of the invention] As a result of repeating research wholeheartedly about the antibacterial properties of a natural product, this invention persons MAME Malus (Mammea) vegetation, The Iridaceae (Eleutherine) vegetation, the Solanaceae (Solunum) vegetation, The Nerium indicum (Himatanthus) vegetation, the Euphorbiaceae (Croton) vegetation, The Simaroubaceae (Simaroubaceae) vegetation and the Moraceae (Brosimopsis) vegetation are effective as an antimicrobial agent, Especially Ablis Cau DO Paller (Abrico-do-para and scientific name:Mammeaamericana L.), Marupazinho (Marupazinho, scientific name:Eleutherine bulbosa), Jurubeba (Jurubeba and scientific name:Solunumpaniculatum L.), Sacaca (Sacaca and scientific name:Croton cajucara Benth.), The knowledge of giving a water rail (Quina and scientific name:Quassiaamala L.) and the antibacterial effect excellent in the extract of Murure (Murure, scientific name:Brosimopsis acutifolia) is carried out, and it came to complete this invention.

[0006]Hereafter, lessons is taken from this invention and it explains in more detail. An antimicrobial agent of this invention is Ablis Cau DO Paller (), as mentioned above. [Abrico-do-para and] Japanese name : A MAME apple, MAMMEINOKI, scientific name:Mammeaamericana L., Marupazinho (Marupazinho, scientific name:Eleutherine bulbosa), Jurubeba (Jurubeba and scientific name:Solunum paniculatum L.), They are one sort or two sorts or more of vegetation chosen from Sacaca (Sacaca and scientific name:Croton cajucara Benth.) and Murure (Murure, scientific name:Brosimopsis acutifolia), and a thing which makes especially the extract an active principle.

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[0007]the above-mentioned vegetation -- the xylem and heartwood -- a part, a bark part, a branch, a leaf, a bulb part, a seed part, ** and a part, a fruits part, etc. can be used.

[0008]In the above-mentioned vegetation, Ablis Cau DO Paller is preferred and the fruits part extract is especially more preferred than antimicrobial activity.

[0009]As an extract of the above-mentioned vegetation, an extraction extract may be sufficient and what carried out separation refinement from an extract may be used. In the case of an extraction extract, if the above-mentioned plant body can be obtained by carrying out solvent extraction of desiccation or the thing ground as it was, and an extracting solvent is a thing of use top avirulence, even if it will use an extract as it is, It may use as a diluent diluted with a proper solvent, or it can be considered as a concentrated extract, or can be considered as the end of dried powder by freeze-drying etc., or what was prepared to paste state can be used.

[0010]As an extracting solvent used for obtaining an extract of the above-mentioned vegetation, Ketone, such as ester, such as aliphatic hydrocarbon, such as aliphatic monohydric alcohol, such as methanol, ethanol, and butanol, hexane, heptane, and cyclohexane, and ethyl acetate, and acetone, water, etc. can be mentioned, and these one sort can be used for independent or two sorts or more, mixing. Especially in these, methanol and acetone are preferred. Extracting processing can usually be performed with a conventional method at temperature of about 3-70 **.

[0011]Separation refinement of an active principle from an extract can be performed by refining an extract in a solvent with column chromatography, liquid chromatography, etc.

[0012]A gestalt of dosage forms which can add an antimicrobial agent of this invention is arbitrary, and can be widely used for drugs, quasi drugs, cosmetics, toiletries products, etc. For example, it can use as dentifrices, a shampoo, rinse, a tonic, an

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oily ointment, an aqueous ointment, cream, an essence, a lotion, a milky lotion, face toilet, a pack, soap, a washing-face agent, makeup body cosmetics, baths, a detergent, a softening agent, etc.

[0013]A publicly known ingredient can be blended with above-mentioned dosage forms according to the kind. As such an ingredient, there are glycerin, a polymer thickener, perfume, oil, an ultraviolet ray absorbent, a chelating agent, coloring matter, etc., for example.

[0014]It can be used, using together with other antimicrobial agents and antiseptics, for example, alcohol, organic acid, chlorhexidine glyconate, sodium benzoate, parahydroxybenzoic acid, methyl parahydroxybenzoate, ethyl p-hydroxybenzoate, propyl parahydroxybenzoate, etc.

[0015]Although loadings of an antimicrobial agent of this invention change with dosage forms, 0.00001 to 20 % of the weight is desirable. It is good to blend 0.0001 to 10% of the weight preferably. It is better for that to which cannot demonstrate an effect of this invention as loadings are less than 0.00001 % of the weight, and manufacture becomes difficult depending on dosage forms not to exceed 20 % of the weight from a certain thing, either.

[0016]

[Effect of the Invention]Since the antimicrobial agent of this invention demonstrates the antibacterial effect which there were no side effects, such as a skin stimulus, was stable, and was excellent, its application range is very wide.

[0017]

[Example]Although the example of preparation, the example of an examination, and an example are given and this invention is explained still in detail hereafter, thereby, this invention is not limited.

[0018][The example 1 of preparation] (Preparation of a plant extract)

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10 times the amount (w/v) methanol was added to 1 kg of beating things of the Ablis Cau DO Paller fruits part, and it extracted for 2 hours. Next, it filtered, decompression distilling off of the methanol was carried out, and 113g of the Ablis Cau DO Paller extraction extracts were obtained.

[0019]Plant extracts used in the following example, such as a methanolic extract of the Marupazinho bulb part, a methanolic extract of the Jurubeba root, a methanolic extract of a water rail leaf, a methanolic extract of the Murure leaf, and a methanolic extract of the Sacaca leaf, were obtained similarly.

[0020][The example 1 of an examination] (Antibacterial activity examination)

The *Staphylococcus aureus* of said plant extract (*Staphylococcus aureus* 209P), The antibacterial properties over the *Staphylococcus epidermidis* (*Staphylococcus epidermidis* ATCC 12228) and a pimple *Bacillus* (*Propionibacterium acnes* ATCC 11827) were measured with the dilution method.

[0021]It was neglected to the room temperature after 120 ** sterilized for 20 minutes with autoclave, using the Muller HINTON agar medium as a culture medium until it became about 50 **.

Each plant extract was dissolved in ethanol by each concentration, 20 ml of agar media obtained by being dropped at a sterilization petri dish 200microl were added, and it was neglected to the room temperature one whole day and night. The bacillus which carried out seed culture beforehand was abacterially inoculated into each culture medium, and it cultivated at 37 ** for 48 hours, and asked for the minimum growth inhibition concentration (Media Interface Connector) from the existence of growth of a bacillus.

[0022]Using the GAM culture medium, the antigenecity study of a pimple *Bacillus* is the same method as the above, and performed anaerobic culture at 37 **.

[0023][The example 2 of an examination] (Antifungal power examination)

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The antifungal power to *Malassezia furfur* IFO 0656 of said plant extract was measured by the same method as the example 1 of an examination. The culture medium was 30 ** in culture temperature using the GPLP agar medium.

[0024][The example 3 of an examination] (Antibacterial activity examination)

Porphyromonas gingivalis 381 of said plant extract. The antibacterial activity examination to (it abbreviates to Pg bacillus hereafter), *Actinomyces viscosus* T 14V (it abbreviates to Av bacillus hereafter), and *Streptococcus mutans* 6715 (it abbreviates to Sm bacillus hereafter) was done.

[0025]Addition churning of 0.04 ml of each fungus liquid which added 0.04 ml of vegetable extracts which changed concentration into the test tube (13x100 mm) containing 4 ml of liquid media gradually, was mixed, and carried out preculture on the 1st was carried out. The amount of growth of the bacillus was measured with the absorbance [in / for this / at 37 ** / after the anaerobic culture during three days, and / 550 nm]. Less than 0.05 absorbance was validated and it asked for the minimum inhibitory concentration (Media Interface Connector).

[0026]A test result is shown below. As a plant extract, the methanolic extract of the Ablis Cau DO Paller fruits part, the methanolic extract of the Marupazinho bulb part, the methanolic extract of the Jurubeba root, the methanolic extract of a water rail leaf, the methanolic extract of the Murure leaf, and the methanolic extract of the Sacaca leaf were used.

[0027]

[Table 1]

[0028]

[Table 2]

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[0029]

[Table 3]

[0030]

[Table 4]

[0031]

[Table 5]

[0032]The strong antibacterial properties of the Ablis Cau DO Paller extract, the Marupazinho extract, the Jurubeba extract, the Sacaca extract, the water rail extract, and the Murure extract were proved so that clearly from these results.

[0033]Next, various dosage forms were prepared with the conventional method according to the following formulas. Loadings are weight %.

[0034]

[Example 1] tooth paste sedimentation nature silica 25.0% sorbitol . 25.0 glycerin 25.0 polyvinyl pyrrolidones . 1.0 lauryl polyglycerin ester 1.0 polyoxyethylene (60 mol) sorbitan 0.5 mono- laurate saccharin sodium 0.2 Ablis Cau DO Paller fruits part methanolic extract 0.2 Marupazinho bulb part methanolic extract . 0.2 perfume 1.0 purified water Residue meter 100.0%[0035]

[Example 2] mouthwash sorbitol 10.0% ethanol . 5.0 polyoxyethylene (60 mol) hydrogenated castor oil 0.1 sucrose monopalmitate 0.2 saccharin sodium 0.2 Ablis Cau DO Paller fruits part ethanol extract 0.5 Jurubeba root ethyl acetate extract 0.5 perfume 0.7 purified water Residue meter 100.0%[0036]

[Example 3] lotion glyceryl ether 1.5% polyoxyethylene (20 mol) hydrogenated castor oil 1.5 monostearin acid sorbitan 1.0 squalane 7.5 dipropylene glycol 5.0 Ablis Cau DO Paller fruits part

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butanol extract . 1.0 Marupazinho bulb part water extract 1.0
perfume 0.5 purified water Residue meter 100.0%[0037]

[Example 4] Face toilet glycerol monostearate 1.0% isopropyl
palmitate 3.0 lanolin 1.0 glycerin 5.0 Ablis Cau DO Paller root
hexane extractable material 1.0 Sacaca leaf cyclohexane
extraction thing 1.0 perfume, coloring matter 0.07 purified water
Residue meter 100.0%[0038]

[Example 5] ointment white vaseline 40.0% cetanol . 18.0 sorbitan
sesquioleate 5.0 lauromacrogol 0.5 ethyl p-hydroxybenzoate 0.02
butyl parahydroxybenzoate 0.02 Ablis Cau DO Paller bark part
heptane extract 2.0 Murure leaf methanolic extract . 2.0 perfume
Minute amount purified water Residue meter 100.0%[0039]

[Example 6] cream propylene glycol 6.0% dibutyl phthalate . 19.0
stearic acid 5.0 glyceryl-monostearate 5.0 monostearin acid
sorbitan 12.0 monostearin acid polyethylene sorbitan 38.0
disodium edetate 0.03 Ablis Cau DO Paller scapus methanolic
extract . 2.0 Marupazinho bulb part benzene extract 2.0 perfume
Minute amount purified water Residue meter 100.0%[0040]

[Example 7] hair shampoo lauryl sulfate triethanolamine . 15.0%
lauryl sulfate monoethanolamide 5.0 magnesium stearates 1.5
liquefied lanolin 1.0 Ablis Cau DO Paller fruits part ethanol extract
1.0 Jurubeba root methanolic extract 1.0 perfume, coloring matter
0.2 water Residue meter 100.0%[0041]

[Example 8] Baths sodium sulfate 45.0% sodium bicarbonate 44.0
Ablis Cau DO Paller root ethyl acetate extract 5.0 Marupazinho
bulb part water extract 5.0 perfume, coloring matter The 1.0 total
The above-mentioned ingredient was mixed 100.0% and baths
were prepared.

[0042]

[Example 9] Hair tonic ethanol 59.0% glycerin 5.0
distearyldimethyl ammonium chloride 1.0 Ablis Cau DO Paller
fruits part water extract 0.5 Sacaca leaf ethanol extract 0.5
perfume 0.5 purified water Residue meter The above-mentioned
ingredient 100.0%. It melted in purified water and the hair tonic

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was prepared.

[0043]

[Example 10] hair rinse stearyl dimethyl benzyl ammonium . 2.0% chloride polyoxyethylene cetyl ether . 1.2 polyoxyethylene lanolin ether . 2.0 propylene glycols 5.0 citrate . 0.1 sodium acid citrate 0.1 butyl parahydroxybenzoate 0.01 methyl parahydroxybenzoate 0.02 Ablis Cau DO Paller fruits part methanolic extract 1.0 Murure leaf ethanol extract 1.0 perfume 0.2 water Residue meter 100.0% [0044]

[Example 11] Antiperspirant aluminum chlorohydrate 20.0% propylene glycol 5.0 ethanol 10.0 Ablis Cau DO Paller leaf hexane extractable material 0.5 Marupazinho bulb part methanolic extract 0.5 perfume 0.2 water Residue meter 100.0% [0045]

[Example 12] 90% of charge ethanol of hair growing 89.5% Ablis Cau DO Paller root heptane extract 3.0 Jurubeba root water extract 3.0 liquid paraffin 5.0 trimethyl glycine 2.0 perfume The 0.5 total 100.0% [0046]

[Example 13] body shampoo potassium laurate 10.0% myristic acid potassium 10.0 palm-oil-fatty-acid diethanolamide 3.0 lauryl dimethyl amine oxide 1.0 propylene glycol 6.0 Ablis Cau DO Paller fruits part acetone extract . 0.5 Marupazinho bulb part ethyl acetate extract 0.5 hydroxypropylmethylcellulose 0.5 distearic-acid ethylene glycol 1.0 edetic-acid 4 sodium 4 monohydrate 0.1 perfume 1.0 purified water Residue meter 100.0% [0047]

[Example 14] liquid detergent Ablis Cau DO Paller scapus methanolic extract . 1.0 water-rail leaf cyclohexane extraction thing 1.0 polyoxy ethylene alkyl ether sulfate 5.0 amine oxide 2.5 lauryl diethanolamide 2.5 polyoxyethylene Nonion 10.0 PEG 1000. 1.8 para toluenesulfonic acid 1.2 sodium benzoate 1.7 sodium acid citrate 0.1 ethanol 2.0 perfume, coloring matter 0.2 purified water Residue meter 100.0% [0048] [Comparative example 1] In the face toilet example 4, face toilet was obtained like Example 4 except [all] having removed the Ablis Cau DO Paller extract and

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the Sacaca extract.

[0049]Next, the antibacterial activity examination of Example 4 and the comparative example 1 was done as follows with the paper disk method.

120 ** sterilized for 20 minutes with autoclave, using the Muller HINTON agar medium as a method culture medium. The obtained agar medium was kept warm at about 50 **, the bacillus which carried out preculture here beforehand was inoculated abacterially, it slushed into the after-churning sterilization petri dish calmly, and the agar plate was created.

[0050]Made 25micro of samples I permeate a filter paper disk (8 mm in diameter), it was made to paste up on the aforementioned agar plate, aerobic fermentation was carried out at 37 ** for 24 hours, and antibacterial activity was measured in the size of the inhibition ring.

[0051]A bacillus *Staphylococcus aureus* (*Staphyrococcus aureus* 209P), The *Staphylococcus epidermidis* (*Staphyrococcus epidermidis* ATCC 12228) and a pimple *Bacillus* (*Propionibacterium acnes* ATCC 11827) were used.

[0052]Using GAM agar, anaerobic culture of the antibacterial activity examination to a pimple *Bacillus* (*Propionibacterium acnes* ATCC 11827) was carried out at 37 ** after the same operation as the above for 48 hours, and it measured antibacterial activity in the size of the inhibition ring. A result is shown in Table 6.

[0053]

[Table 6]

- : as for the inhibition-ring-less comparative example 1, an inhibition ring was not accepted. The strong antibacterial activity of the Ablis Cau DO Paller extract and the Sacaca extract was proved so that clearly from this result.

[0054]As a result of examining about Examples 1-3 and the

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formula of 5-14 similarly, the strong antibacterial properties of the Ablis Cau DO Paller extract, the Marupazinho extract, the Jurubeba extract, the Sacaca extract, the water rail extract, and the Murure extract were proved.

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CLAIMS

[Claim(s)]

[Claim 1]An antimicrobial agent containing one sort or two sorts or more of vegetation chosen from Ablis Cau DO Paller, Marupazinho, Jurubeba, Sacaca, a water rail, and Murure, or its extract as an active principle.

[Translation done.]